

# Myths in Physics

Time Travel, Space-time, Wormholes, Tachyons, the One electron Universe, and Teleportation [beaming]

## Time Travel and Space-time: What Time Is and What Time Is Not

Scott Matheson Hitchcock

06/12/21

First we start with a review of the 7 principles found to be the actual nature of time which is needed to understand these topics which rely on false concepts about time and space.

1. **Philosophy of Time:** time exists as information, NOT as a dimension. Time is as real as information is real.
2. **Arrows of Time: Quantum Arrows of Time [QATs]** and all other arrows of time only exist as constructions from signal/information flow in causal networks. All arrows of time point from cause [source] to effect [sink] from simple 2-level systems at the quantum scale such as photon emission in atoms up through the cosmological domain through hierarchical scaling of interconnected causal networks at various plateaus of complexity [POCs].
3. **Direction of Time:** only exists as directions associated with vectors representing arrows of time pointing from cause to effect [source to sink] in the causal networks of the evolving universe.
4. **There is no Time to travel 'in', only space [i.e. the vacuum]** where the 'now' created by our consciousness is all we can directly experience. Note that the vacuum exists as a physical entity and space is only a map of this fundamental basis for the universe. "The Map is not the territory" - Alfred Korzybski
5. **Our brains T-computer creates 'time' labeled maps of the patterns of observed changes in the configurations of matter in the universe into sequential time stamped and labeled memories.** Change is a Fundamental property of the universe, time is not. No change means no time.

See the following:

**T-computers and the Origins of Time in the Brain September 2007**

6. **The Problem of Time** therefore has been solved using Feynman Clocks, T-computers, and Causal Networks.
7. **The Vacuum is space and Time is a measure of Changes in the configurations of matter floating on the surface of the vacuum.** We attribute dimensions to the vacuum [space] as part of our application of geometry [models] to the real world. The vacuum is much more complex than mere 'empty' space. The vacuum is in fact a multi-vacuum with properties that depend locally on matter and globally on cosmic universality. Cosmological evolution is measured by the maps of change we construct using time as a metric.

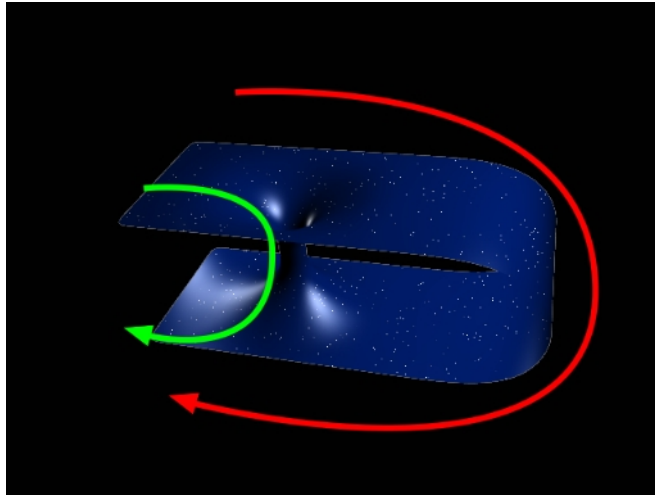
**Note:** the speed of light is a fundamental property of the multi-vacuum 'surface' of the deep energy sea that contains the missing mass and dark energy of the universe. This is why it can't be violated by mythical particles such as **tachyons** or space-time fabrications and fantasies such as cosmic tunnels or **wormholes**.

**Special Note:** Time is still useful as a measure of change in our daily lives. Using repeating reproducible regular signal generating systems such as standard clocks [e.g. atomic clocks, watches, computer clocks etc.] gives us a way to create our ordered time maps. Time produced by comparison of a standard clock with the observed system and processed by our brains T-computer or similar 'clocked' information processing devices is 'real'. The reality of time as a pacer of human activities is embedded in our lives.

# The Wormhole Myth

Scott Matheson Hitchcock

Version as of 03/05/21



**Abstract:** Wormholes are an artificial construction arising from the misuse and overexertion of space-time concepts. Space-time is any mathematical model which fuses the three dimensions of space and the one dimension of time into a single four-dimensional manifold. The fabric of space-time is a **conceptual model** combining the three dimensions of space with the fourth dimension of time. Spacetime diagrams can be used to visualize relativistic effects, such as why different observers perceive differently where and when events occur. Without time as part of space-time there is no space-time and therefore there are no wormholes. No time travel and space travel through these fictitious wormholes is possible due to the fact that these are *mathematical constructions* that do not represent physical reality rather they are pseudo-science dreams of time and space travel in the manner of science fiction fantasies in the guise of physics. Their invention reflects the fundamental error of confusing models of space-time and related geometries with observable phenomena that dates back to Minkowski.

**The myth of time travel persists in part due to hypothetical mathematical constructions such as wormholes.**

Wormholes and other concepts such as the Einstein-Rosen Bridges are classic examples of reading too much into a mathematical theory without a sound foundation in the experimental side of physics [and engineering]. Regardless of the elegance, seductiveness, and complexity of the mathematics used in general relativity and extensions of it into various cosmological models, one can get lost in these maps [theory] which are not the same as the territory [reality].

The concept of space-time as it is used by pretty much everyone else but me needs to be replaced with **causal networks** that are time independent but yet create time as a secondary computed artifact resulting from information [via signals] processed by the T-computers in our brains and those instruments we create to measure these changes in an evolutionary universe.

**A brief review of the properties of wormholes.** A wormhole is a hypothetical object that allows faster than light travel between distant point in space. Most physicists believe that faster-than-light particles cannot exist because they are not consistent with the known laws of physics. If such particles did exist, and could send signals faster than light, then according to the theory of relativity they would violate causality, leading to logical paradoxes of the "kill your own grandfather" type. wormholes would also exhibit the unusual property of increasing in speed as their energy decreases, and would require infinite energy to slow down to the speed of light.

**No experimental evidence for the existence of such objects has been found since it is not possible that they exist other than as a mathematical exercise due to the use of space-time maps.**

For more on the nature of the vacuum 'surface' and its deep energy sea acting as a primary stage for the evolving universe and as a container within it all of the missing mass and dark energy. Note that the concept of wormholes assumes, falsely, that time exists as a space-like dimension through which time travel is possible both forward and backward.

**CONCLUSION:** Because time does not exist as a dimension, space-time maps are invalid as representations of the observable universe, light cones are mathematical constructions of an overstretched theory, therefore wormholes do not exist. Space-time models need to be replaced with new methods including **causal networks** built from **Feynman Clocks** and their hierarchical analogs at various levels of complexity from microscopic to cosmic that are time independent but yet create time as a secondary computed artifact resulting from information [via signals] processed by the **T-computers** in our brains and those instruments we create to measure these changes in an evolutionary universe.

## The Tachyon Myth

Scott Matheson Hitchcock

Version as of 02/28/21

**The myth of time travel persists in part due to hypothetical particles such as tachyons.**

**A brief review of the properties of tachyons.** A tachyon (/ˈtækiɒn/) or tachyonic particle is a hypothetical particle that always travels faster than light. Most physicists believe that faster-than-light particles cannot exist because they are not consistent with the known laws of physics. If such particles did exist, and could send signals faster than light, then according to the theory of relativity *they would violate causality*, leading to logical paradoxes of the "kill your own grandfather" type. Tachyons would also exhibit the unusual property of increasing in speed as their energy decreases, and would require infinite energy to slow down to the speed of light.

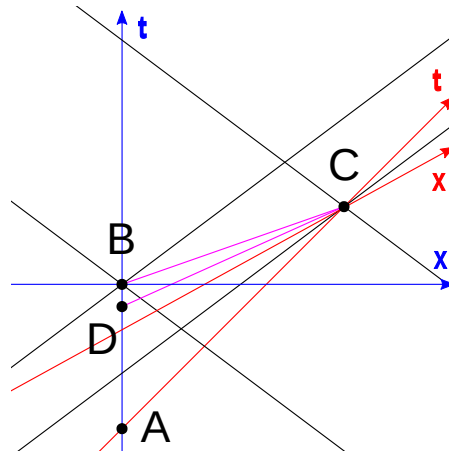
**No experimental evidence for the existence of such particles has been found since it is not possible that they exist other than as a mathematical exercise.**

Because a tachyon's squared mass is negative, it formally has an imaginary mass. This is a special case of the general rule, where unstable massive particles are formally described as having a complex mass, with the real part being their mass in usual sense, and the imaginary part being the decay rate. Collections of tachyons collectively can be modeled as tachyonic fields. Examples for tachyonic fields are all cases of spontaneous symmetry breaking. In condensed matter physics a notable example is ferromagnetism; in particle physics the best known example is the Higgs mechanism in the standard model.

In modern physics, all fundamental particles are regarded as localized excitations of fields. Tachyons are unusual because the instability prevents any such localized excitations from existing. Any localized perturbation, no matter how small, starts an exponentially growing cascade that strongly affects physics everywhere inside the **future light cone** of the perturbation.

The phenomenon of spontaneous symmetry breaking, which is closely related to tachyon condensation, plays a central part in many aspects of theoretical physics, including the Ginzburg–Landau and BCS theories of superconductivity. Other examples include the inflaton field in certain models of cosmic inflation (such as new inflation, and the tachyon of bosonic string theory).

Speaking of mathematical exercises not based on the physical nature of the real universe, string theory in principle describes the physics of tachyonic fields and predicts whether such fields appear.



**Tachyons that are thought to be able to time travel due to their peculiar properties and the misuse of spacetime diagrams.** In the **above illustration**, a spacetime diagram shows that moving faster than light implies **time travel** in the context of special relativity. A spaceship departs from Earth from A to C slower than light. At B, Earth emits a tachyon, which travels faster than light but forward in time in Earth's reference frame. It reaches the spaceship at C. The spaceship then sends another tachyon back to Earth from C to D. This tachyon also travels forward in time in the spaceship's reference frame. This effectively allows Earth to send a signal from B to D, back in the false construction of time in space-time models. This also assumes that light-cones exist beyond their use as artificial maps of causality and carries a disregard for the speed of light limit for the propagation physical signals on the 'surface' of a complex vacuum.

For more on the nature of the vacuum 'surface' and its deep energy sea acting as a primary stage for the evolving universe and as a container within it all of the missing mass and dark energy see the following link:

[Missing or Dark Mass and Missing or Dark Energy are found in the components of a Multi-Vacuum Universe \[see Appendix 1\]](#)

***Note that the concept of tachyons assumes, falsely, that time exists as a space-like dimension through which time travel is possible both forward and backward.***

**CONCLUSION: Because time does not exist as a dimension, space-time maps are invalid, light cones are mathematical artifacts of overstretched theory, *therefore tachyons and tachyonic fields do not exist.***

## The One Electron Universe Myth

Scott Matheson Hitchcock

Version as of 06/12/21

**Abstract:** The proposition by Feynman and Wheeler that a single electron could exist that explains electron activities such as atomic photon emission throughout the universe is shown to be wrong.

**Theory:** **The Theory of Positrons\*** [Phys. Rev. 76, 749 – Published 15 September 1949] by **RICHARD P. FEYNMAN** is an important paper in that it propagates the myth of time reversal. In this paper, he claims that a positron can be viewed as a time reversed electron [and vice versa]. It is a classic but *subtle* petitio principii

fallacy [assuming what you want to prove a.k.a. circular reasoning] assuming that time is a dimension that can be reversed. It is also a focal point for the concept of the one electron universe **[see Appendix 2]**

The correct way to view this *without time contradictions* is to use time independent **causal networks** representing the evolution of the particle interactions in the vacuum where time points from cause [source] to effect [sink]...**time does not cause anything**, it is not a dimension, it is a product [map of change] of our brains T-computer and therefore no time reversal is possible...time reversal is often confused with process reversal.

The PDF full version of Feynman's paper\* is at:

**<https://authors.library.caltech.edu/3520/1/FEYpr49b.pdf>**

*The key to understanding this apparent paradox is that **process reversal is NOT time reversal.***

It is important to recognize what time really is. Here are some key points to look at before reading too much into the conventional and erroneous concepts about time reversal [and time travel]:

So far as the **one-electron universe** postulate, proposed by **John Wheeler** in a telephone call to **Richard Feynman** in the spring of 1940, is the hypothesis that all electrons and positrons are actually manifestations of a single entity moving backwards and forwards in time. The idea is based on the world lines [assumes that spacetime exists and is not merely a model] traced out across **spacetime** by every electron. Rather than have myriad such lines, Wheeler suggested that they could all be parts of one single line like a huge tangled knot, traced out by the one electron. Any given moment in time is represented by a slice across spacetime, and would meet the knotted line a great many times.

See Wikipedia: **The One Electron Universe.**

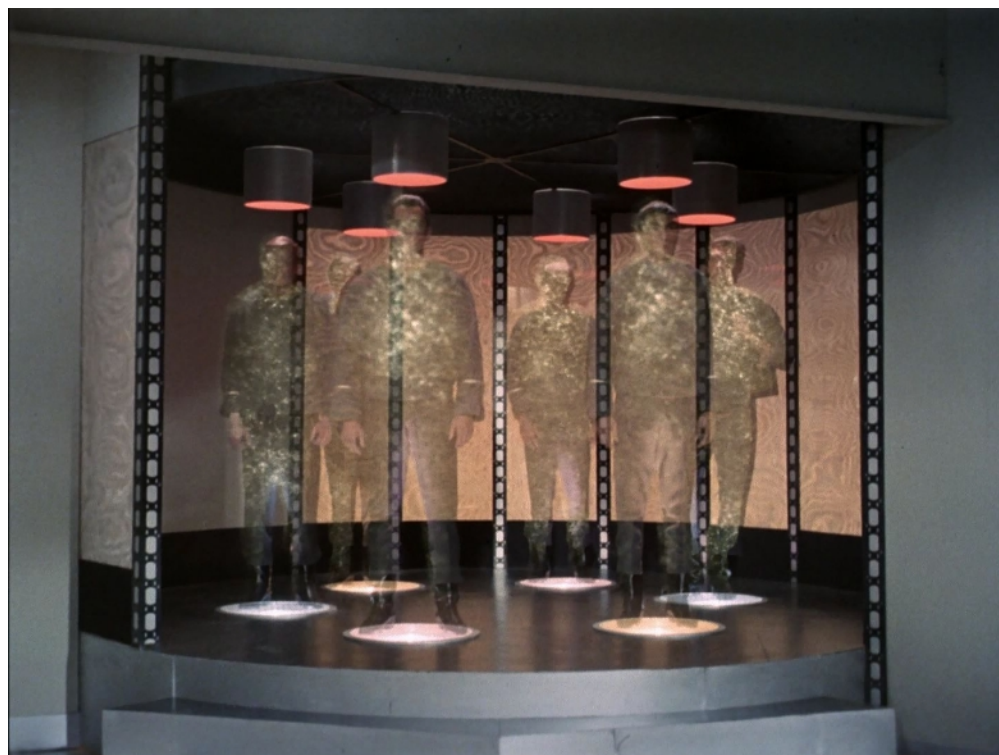
This **one electron universe idea is false** due to the **ASSUMPTIONS and PREMISES** that spacetime, spacetime diagrams, and world lines are fundamental properties of the universe not merely mathematical representations. One must question this confusion of a map [spacetime, world lines etc.] with the territory [the vacuum]. Feynman's development of the Space-Time View of Quantum Electrodynamics is clearly flawed at the most fundamental levels. **There are no actual world lines in space [the vacuum].** World lines are mathematical artifacts of the spacetime models and maps. **Therefore the one electron universe is based on the false premises of spacetime theories.**

**Experimental Evidence:** Looking at the **observational evidence** we see that the one electron universe is absurd. First of all we are living in a sea of photons, most of which are generated by orbital transitions of electrons in atoms. The speed of light limits the presence of an electron in two widely separated places in space. Let's assume we detect two simultaneous photons from two equidistant sources [for example two galaxies] whose separation would preclude an electron jumping from one source [star, galaxy] to the other [star, galaxy] at what would clearly have to be a speed greater than light. **We would have two distinct electrons in order to create the two simultaneous photons.** There could be no possibility of a single electron creating all these photons we see throughout the universe. Two very obvious examples contradicting the one electron universe are **electronics** [e.g. the **internet** etc.] and **electrical power systems**. Clearly one electron can not be everywhere to perform all the light speed separated instrument and power distribution activities in all their complexity all over our planet. **This myth of a one electron universe clearly illustrates a disconnect of theory from observational reality in spite of elegant mathematics leading to incorrect physical [mathematical] models [similar to string theory nonsense].**

**CONCLUSIONS:** the theory is flawed by assumptions about spacetime and extrapolations from these incorrect models including time reversal. **Observational evidence of photons provides a simple contradiction to the theory along with electronics and electrical power systems.**

# The Teleportation Myth

## Why the Star Trek Type of Teleportation or 'beaming' is Not Possible



Due to the fact that the **fictional teleportation** of material bodies requires time travel or at least the limitations of the speed of light to transfer a body to distant locations we start with a review of the 7 principles found to be the actual nature of time. This is followed by an investigation of the assumptions about the physics of teleportation showing the absurdity of this dramatic vehicle as seen in popular mythology.

### Star Trek Teleportation or 'Beaming' of things across Space [the vacuum] and Time [a construction]

Some would argue that having one's "molecules scrambled," as Dr. McCoy would put it, is actually the surest way to die. Sure, after you've been taken apart by the transporter, you're put back together somewhere else, good as new. But is it still you on the other side, or is it a copy? If the latter, does that mean the transporter is a suicide box?

Teleportation is the hypothetical transfer of matter or energy from one point to another without traversing the physical space between them. It is a common subject in science fiction literature, film, video games, and television. **Teleportation is often paired with time travel**, being that the traveling between the two points takes an unknown period of time, sometimes being immediate.

Teleportation has not yet been implemented in the real world. There is no known physical mechanism that would allow this. Frequently appearing scientific papers and media articles with the term teleportation typically report on so-called "quantum teleportation", a scheme for information transfer. [this is not the subject of this paper]

Beaming is often used as a synonym for teleportation and refers to the hypothetical transmission of an object in the form of radiation. To this end, the object must be "dematerialized" at the sender, i.e. broken down into its components, which are then sent as a beam and "materialized" at the destination, i.e. reconverted into matter. In this way it is achieved that an object, similar to teleportation, disappears at



the place of origin and reappears at the destination. However, there is a continuous transmission path along which the matter (possibly in a converted form) traverses the physical space. Therefore, strictly speaking, beaming is not teleportation. The concept mainly originates from the science fiction series *Star Trek*, where people and inanimate objects are transported back and forth between places using so-called transporter devices.

In the real world, it has so far not been possible to beam objects. For one thing, there is no available technology that can disintegrate or reassemble arbitrary objects atom by atom, let alone within seconds. Furthermore, the required amount of information to fully represent macroscopic objects is far too large for today's available information technology.

the science fiction concepts for beaming do not get it exactly clear what kind of radiation the matter would be converted to.[12] There are only two types of radiation in physics that come into question: Electromagnetic radiation (radio waves, light, X-rays, gamma rays etc.) and particle radiation (alpha and beta rays, neutrons, neutrinos, atoms etc.). According to the current state of knowledge, electromagnetic radiation alone cannot transport matter, since it only transmits the energy, but not the baryons and leptons required to create atoms. If, alternatively, a beam of matter particles was sent, this would offer hardly any advantage over transporting the object as a whole. On the one hand, accelerating and decelerating the particles would require the same amount of energy as for the original object. So there would be no speed advantage. On the other hand, particle beams can hardly penetrate layers of matter along the transmission path (which is supposedly possible in the science-fiction concepts within some limits).

A realistic form of beaming could be the transfer of pure information and the use of matter available at the destination to perform materialization. Then however, beaming would merely be the construction of a remote copy. This leads to the paradox of possibly creating multiple copies of the original object that was destroyed or killed in the case of living things at the point of origin – i.e. the transmitter say on the star ship *Enterprise* in the case of *Star Trek*.

**Note:** the speed of light is a fundamental property of the multi-vacuum 'surface' of the deep energy sea that contains the missing mass and dark energy of the universe. This is why it can't be violated by mythical particles such as **tachyons** or space-time fabrications and fantasies such as cosmic tunnels or **wormholes**. This is also why instantaneous **teleportation** of material bodies across vast regions of space is not possible. Converting matter to energy in order to teleport it to another space into presumably electromagnetic waves or photons requires infinite energy to bring a resting mass to the speed of light.

Therefore we conclude that 'beaming' or teleportation of humans across regions of space is nonsense and is only a fictional concept with no physical reality behind it.

**CONCLUSIONS: Wormholes, tachyons, the one electron universe, and teleportation [beaming] are reduced to examples of how *NOT* to do physics and science in general [see Appendix 3].**

#### **Appendix 1:**

Below are images of the **physics of the vacuum** as recast from the perspective that the vacuum is not empty but holds all the missing mass and dark energy as a reservoir of total vacuum energy responsible for the shape and evolution of the universe.

MISSING MASS & ENERGY AS RELATIVE VACUUM LEVELS

(SCOTT M. HITCHCOCK)

[4/27/13 7:52AM EST]

NON-CASIMIR REGION

$$d_{m,m_2} \gg d_p$$

CASIMIR DETECTOR

IF: CASIMIR VACUUM

$$d_{m,m_2} = d_{\text{CASIMIR}} = n d_p$$

PAGE 1

WHAT WE SEE

VAC<sub>MM</sub>

VAC<sub>ME</sub>

[LIGHT] M<sub>OBS</sub> = OBSERVABLE MASS

[DARK] M<sub>M</sub> = MISSING MASS

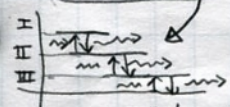
[DARK] M<sub>E</sub> = MISSING ENERGY

EXPERIMENTAL DESIGNS INCLUDE TEST FOR VACUUM LEVEL TRANSITIONS

EXPERIMENTAL DOMAIN OF PHOTON/PARTICLE SCATTERING & DECAY EVENTS & PHOTON ENERGY SHIFTS

THEN OBS. "VACUUM" PENETRATES INTO "MISSING" MASS & ENERGY DOMAINS

I.E. 3 VAC LEVELS I, II, III



COLOR CODE

VAC. LEVEL

OBSERVABLE MASS & ENERGY

$$|\psi_{\text{OBS}}\rangle \Rightarrow \text{I}$$

MISSING MASS

$$|\psi_{\text{MM}}\rangle \Rightarrow \text{II}$$

MISSING ENERGY

$$|\psi_{\text{ME}}\rangle \Rightarrow \text{III}$$

DISTANCE

$$\otimes (\text{UNITS OF PLANCK DISTANCE (LENGTH)})$$

$$d_p = 1.6 \times 10^{-35} \text{ m}$$

$$|\psi_{\text{U}}\rangle = |\psi_{\text{OBS}}\rangle \otimes |\psi_{\text{MM}}\rangle \otimes |\psi_{\text{ME}}\rangle \text{ CURRENT EPOCH}$$

MULTI-VACUUM UNIVERSE

WHERE:  $|\psi_{\text{VAC}_{\text{OBS}}}\rangle \equiv |\psi_{\text{MM}}\rangle \otimes |\psi_{\text{ME}}\rangle$

MIXED STATE

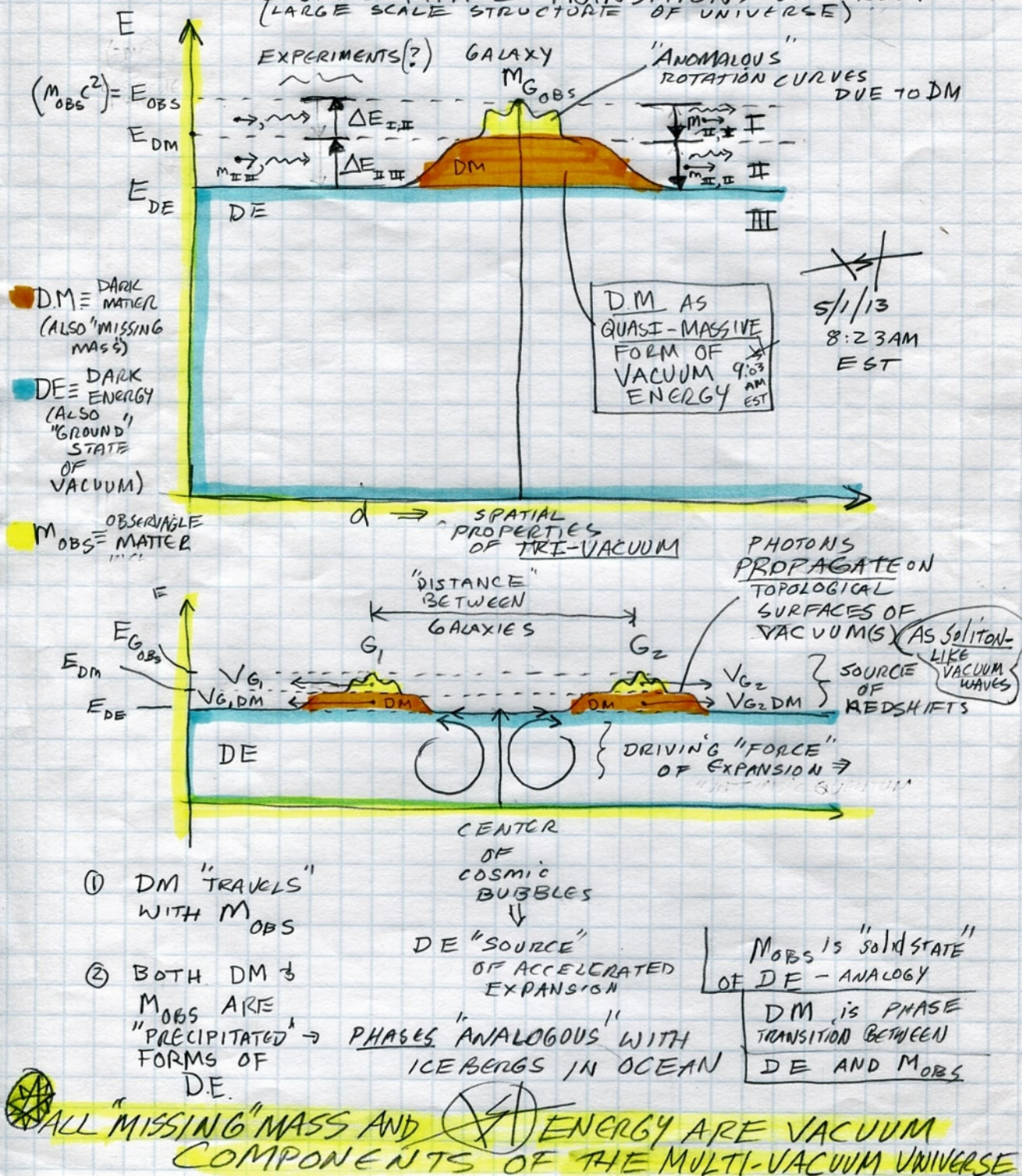
\* FIRST THOUGHTS: ABOUT MISSING MASS/ENERGY PROBLEM, MISSING MASS/ENERGY IS EMBEDDED IN VACUUM WHERE VACUUM HAS AT LEAST 3 STATES (TOPOLOGICAL INTERFACES) DEPENDING ON DISTRIBUTION OF OBSERVABLE MATTER/ENERGY  $\Rightarrow$  NOTE GRAVITATION EFFECTS ARE TOPOLOGICAL PROPERTIES OF MULTISTATE VACUUM  $\Rightarrow$  EXPANSION ACC. OF BIG BANG DUE TO PHASE TRANSITION ENERGY OF  $|\psi_{\text{MM}}\rangle \otimes |\psi_{\text{ME}}\rangle$  DE-COUPLING OF VACUUMS



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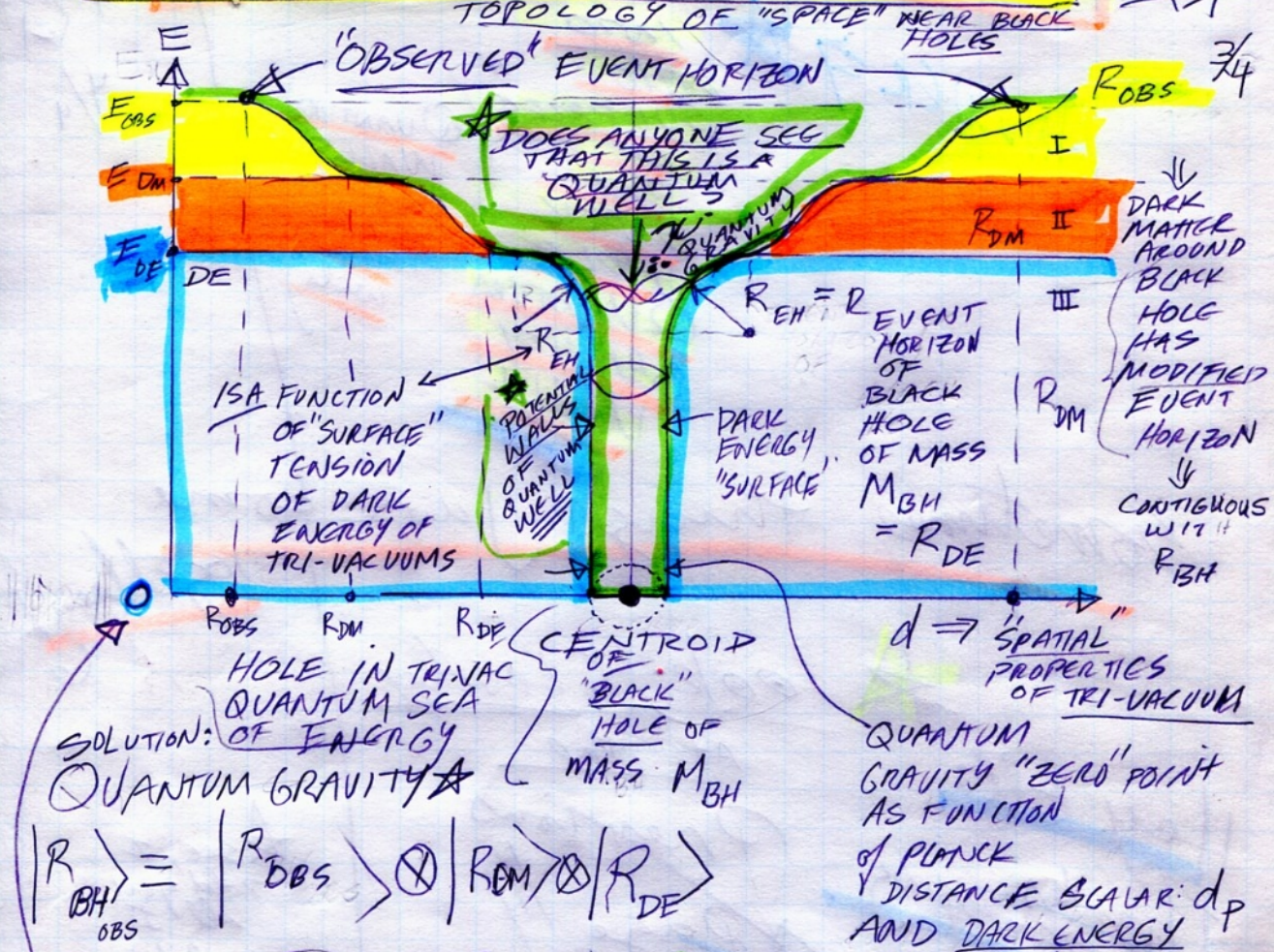
PAGE 2

## EVOLUTION OF VACUUM STATES

⇒ COSMIC PHASE TRANSITIONS OF "VACUUM"  
(LARGE SCALE STRUCTURE OF UNIVERSE)



AKA → TRIVACUUM → TRIVAC → TVAC → START: 3:38 PM  
**THE MULTI-VACUUM UNIVERSE AND "BLACK" HOLES** 5/30/2016



SOLUTION: QUANTUM GRAVITY

$$|R_{BH}\rangle \equiv |R_{OBS}\rangle \otimes |R_{DM}\rangle \otimes |R_{DE}\rangle$$

KEY ← TRI-VACUUM TOPOLOGY

TO QUANTUM GRAVITY

OF QUANTUM ENERGY SEA THROUGHOUT THE UNIVERSE

SOLUTION → TO QUANTUM GRAVITY

WHERE GRAVITY

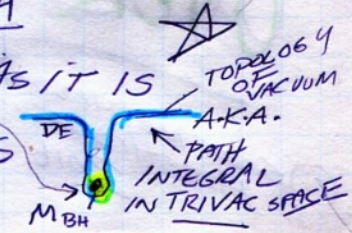
$$|\phi\rangle \equiv |V_I\rangle \otimes |V_{II}\rangle \otimes |V_{III}\rangle$$

"ZERO" POINT OF TRI-VACUUM QUANTUM SEA

BLACK HOLE IS REALLY A SINGULARITY AS IT IS

USED IN COMPLEX ANALYSIS

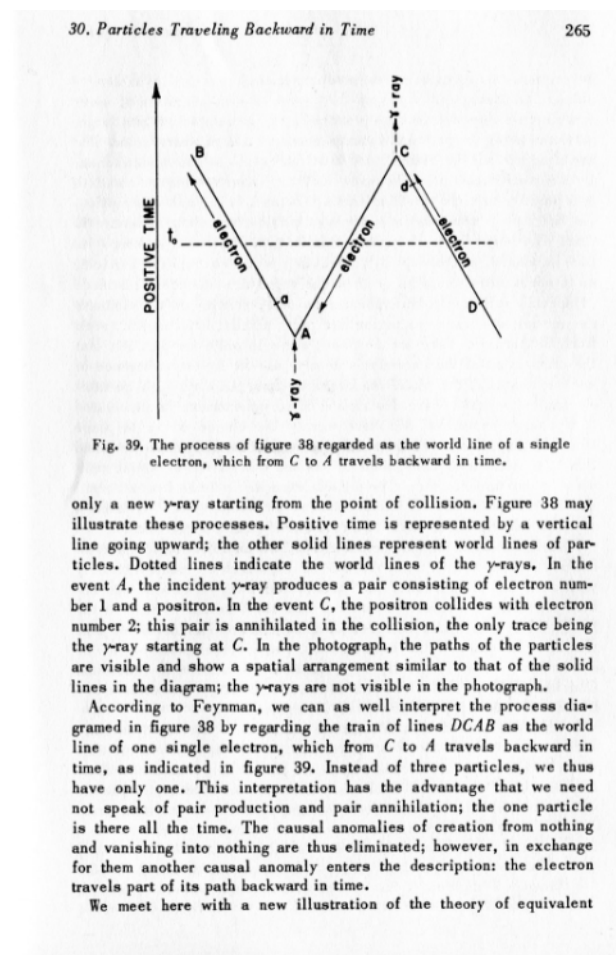
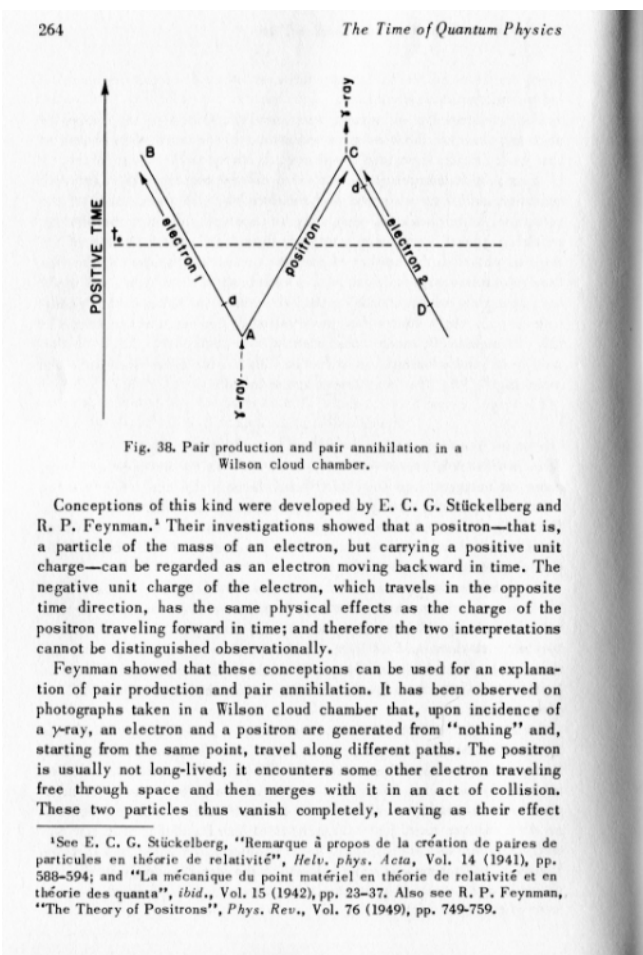
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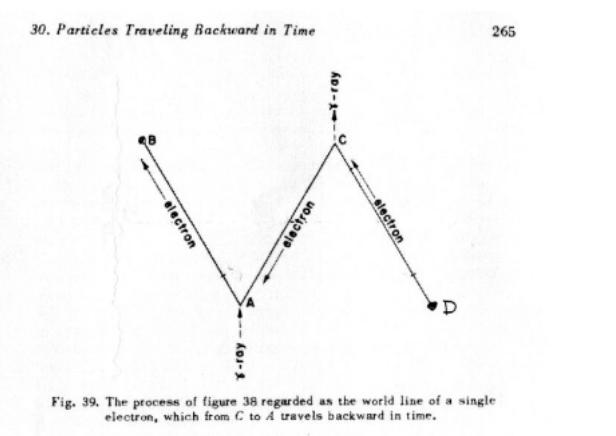
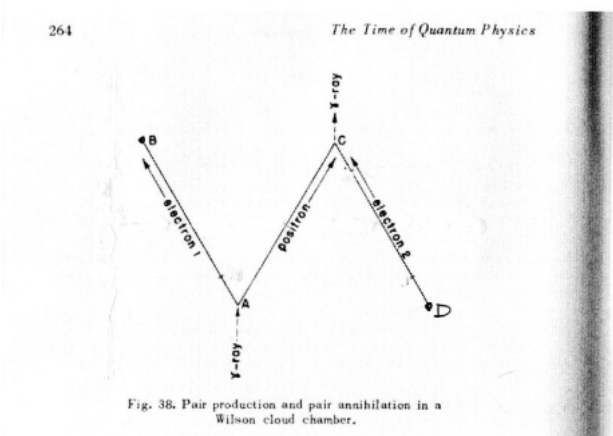


## Appendix 2:

The following illustrations show how to remove time and the time reversal problem by turning a Feynman's space time diagram into a causal network.



STEP 1 : REMOVE TIME FROM SPACE-TIME LEAVING JUST SPACE



## STEP 2: CONVERT TO CAUSAL NETWORKS

A, B, C, D ARE NODES OF NETWORKS FIXED IN SPACE

LET  $d \equiv d_{AB} = d_{AC} = d_{DC}$  LET  $V = V_{AB} = V_{AC} = V_{DC} = V_{CA}$

• THEN WE DERIVE TRANSIT TIMES BETWEEN NODES:

$$t_{AB} = t_{AC} = t_{DC} = \boxed{t} = t_{AB} = t_{CA} = t_{DC} = \boxed{\frac{d}{V}}$$

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The Time of Quantum Physics

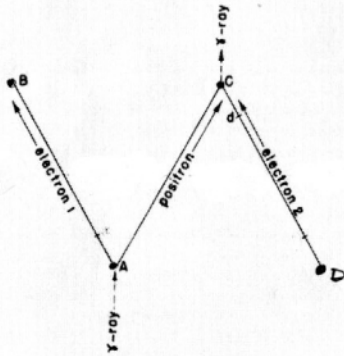


Fig. 38. Pair production and pair annihilation in a Wilson cloud chamber.

30. Particles Traveling Backward in Time

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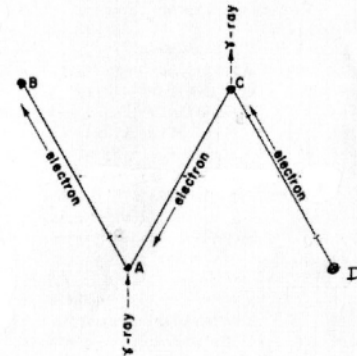


Fig. 39. The process of figure 38 regarded as the world line of a single electron, which from C to A travels backward in time.

NOTE THAT THE POSITRON (FIG.38) IS MOVING FROM A TO C IN SPACE ONLY IN A DIRECTION OPPOSITE TO THE ELECTRON (FIG 39) FROM C TO A. WITHOUT TIME CONFUSING THE DIAGRAMS, THE TIME REVERSAL INTERPRETATION IS NOT NEEDED. TIME IS A DERIVED CONCEPT, NOT FUNDAMENTAL LIKE SPACE.

### Appendix 3:

The Scientific method:

